NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
FACT SHEET
(Pursuant to NAC 445A.236)

Permittee: Homestretch Geothermal LLC
1147 N Daybreak Dr
Washington UT 84780

Permit No.: NEV92037

Facility: Wabuska Geothermal Power Plant
15 Julian Ln
(East of Hwy 95A, approximately 1.5 mi north of Wabuska)
Lyon County
Latitude: 39º 09' 40" N
Longitude: 119º 11' 00" W
T15N R25E S15SW¼ and S16SE¼

General: This geothermal power plant has been in operation since 1984. It operates in binary mode due to the relatively low (220ºF) resource temperature, using isopentane as the working fluid. Two production wells have been installed. Discharge to natural pre-existing drainage channels began in 1996 after repeated attempts at re-injection failed. The ultimate destination for most of the discharge has historically been a privately owned wetland west of Hwy 95A called West Basin. Power output is approximately 1.35 MW. For comparison, Sierra Pacific Power Co's nearby Fort Churchill power plant is rated at 220 MW.

Water exits the generation units at 150 ºF, and after flowing through a series of cooling ponds, exits the property at 120 ºF at two locations. The discharge consists of spent geothermal water that has been used to heat isopentane in non-contact heat exchangers. A portion of this water is further cooled in evaporative spray ponds for use as a coolant in the isopentane condensers, prior to discharge. The adjacent property that has received the flow, including West Basin, is owned by Break a Heart LLC. The temperature apparently cools to ambient within wetlands located adjacent to and east of the highway. From that point, flow continues to West Basin via culvert.

After receiving the permit in 2003 the company obtained additional water rights and subsequently applied for a flow increase under the discharge permit to accommodate increased power production. A draft permit and fact sheet were prepared and a public notice was published on 12/23/05. In response, Break A Heart LLC informed the Division that they would accept no more than the existing flow of 1.9 MGD without a written agreement. Based on that, Homestretch now seeks to route the additional flow to property they recently acquired to the east of the plant site. This area is an alkali flat, and previously received a portion of the discharge. At the same time, Homestretch also requested a reduction in the

proposed flow limit from 8 to 7 MGD based on evaporative losses that weren't considered previously. The permit accompanying this fact sheet includes those arrangements.

Receiving Water Characteristics Averages of the annual sample results for 2003, 2004, and 2005 are as follows.

Avg DMR Data 2003 - 2005				Water Quality Criteria [1]			
mg/l [2]	Outfall 001	Outfall 002	West Basin	i	ii	iii	iv
Al	0.09	0.08	0.07				
As	**0.05**	**0.05**	**0.06**	**0.05**	0.18	0.1	0.2
Ba	0.02	nd	0.02	2			
B	**1.13**	**1.08**	**1.16**			**0.75**	5
Ca	40.5	39.8	46.2				
Cu	**0.02**	nd	nd		**0.012** [3]		
Fe	0.10	0.02	0.03		1	5	
Mg	0.20	0.19	0.46				
Mn	nd	nd	nd			0.2	
K	19.0	18.9	21.6				
Na	292	291	319				
Cl	61.4	63.3	65.5	250		250	250
F	**9.7**	**9.8**	**8.9**			**1**	**2**
SO_4	**448**	**431**	**462**	**250**			
pH	7.46	7.61	7.11	[4]	[4]	[4]	[4]
TDS	**1113**	**1029**	**1181**	**500**		**500**	**500**
H [5]	102	100	117				

1. i = municipal & domestic supply, ii = aquatic life, iii = irrigation, iv = livestock watering
2. Except pH
3. Based on West Basin hardness
4. 6.5 - 9.5
5. Hardness as mg/l $CaCO_3$, based on Ca and Mg concentrations.

From the table, West Basin water quality generally appears to be slightly elevated but otherwise similar to the discharge. Constituents with concentrations in excess of water quality criteria are arsenic, boron, copper, fluoride, sulfate and TDS. Arsenic is consistently in excess of the drinking water criteria. Copper was only detected once in the data set, but at a level that would have exceeded the

aquatic life criteria had it been detected in West Basin. Fluoride, sulfate, and TDS are consistently elevated, while boron has exhibited a rising trend.

Rational for Permit Requirements: Hot spring pools existed in this area prior to development of the power plant, so to a certain extent the discharge is perpetuating a previously existing flow. Based on this, and the water quality of the discharge, treatment has not been required and concentration limits have not been imposed. The sampling frequency has been increased from annual to quarterly, based on the requested flow increase. Two discharge points currently exist and convey the flow to the Break A Heart property, while the third will be constructed to accommodate flows in excess of 1.9 MGD, as described above. Sampling has only been required at one outfall based on the similarity of the previous data and the manifold arrangement that has recently been set up for the two production wells. In summary, the permit accompanying this fact sheet requires weekly flow measurement and quarterly sampling for the above parameters at one discharge point, West Basin, and the pond that will develop on the alkali flat after a portion of the discharge is routed to that area. Analytical results are simply reported. Overall, total flow is subject to a 7.0 MGD limit, while no more than 1.9 MGD can be discharged to the Break A Heart property.

Changes from Previous Permit The permit accompanying this fact sheet is a modification to the previous one that was issued 02/04/03, with the subject of the modification being an increase in the permitted flow from 1.9 MGD to 7.0 MGD. Along with that, the sampling frequency has been changed from annual to quarterly, sampling at one discharge point has been eliminated, and provision has been made for a future discharge to the alkali flat to the east. Other conditions remain unchanged.

Compliance History Although there is no record of permit violations in Division enforcement files, a recent inspection revealed that flow measurement for one of the existing discharge points was not representative. This will be corrected in accordance with the Schedule of Compliance below.

Schedule of Compliance: The permittee is required to submit a design and installation schedule for flow measurement on the western ditch by the six month anniversary of the effective date of the permit. Flow splitting and measurement facilities are to be approved and constructed prior to initiation of discharge to the alkali flat.

Well Head Protection Program This facility is not located within the 7000 ft buffer zone of any municipal supply wells.

Procedures for Public Comment: The Notice of the Division's intent to modify discharge permit NEV92037 authorizing discharge of 7.0 MGD of spent geothermal water to groundwater via ditches, ponds, and wetlands, subject to the conditions contained within the permit, is being sent to the **Reno Gazette Journal** and the **Mason Valley News** for publication. The notice is being mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of thirty (30) days following the date of publication of the public notice in the newspaper. The comment period can be extended at the discretion of the Administrator. The deadline by which all written comments are to be postmarked or hand delivered to the Division is 5:00 pm Tuesday April 25, 2006.

A public hearing on the proposed determination can be requested by the applicant, any affected state or interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period and indicate the interest of the person filing the request and the reasons why a hearing is warranted.

The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Proposed Determination: The Division has made the tentative determination to issue the proposed discharge permit for a five year term.

Prepared by: Robert J. Saunders
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Bureau of Water Pollution Control
March 14, 2006